SECTION 33 14 16 - SITE WATER UTILITY DISTRIBUTION PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES
   A. Water pipe for site conveyance lines.
   B. Pipe valves.
   C. Fire hydrants.

1.02 RELATED REQUIREMENTS
   A. Section 03 30 00 - Cast-in-Place Concrete: Concrete for thrust restraints.
   B. Section 21 11 00 - Facility Fire-Suppression Water-Service Piping.
   D. Section 33 05 13 - Manholes and Structures.

1.03 REFERENCE STANDARDS
   B. ASME B16.4 - Gray Iron Threaded Fittings: Classes 125 and 250 2016.
   C. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings 2018.
   J. AWS A5.8M/A5.8 - Specification for Filler Metals for Brazing and Braze Welding 2011 (Amended 2012).
1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
B. Product Data: Provide data on pipe materials, pipe fittings, valves and accessories.
C. Project Record Documents: Record actual locations of piping mains, valves, connections, thrust restraints, and invert elevations. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

PART 2 PRODUCTS

2.01 WATER PIPE

A. Ductile Iron Pipe: AWWA C151/A21.51:
   1. Fittings: Ductile iron, standard thickness.
   2. Joints: AWWA C111/A21.11, Styrene butadiene rubber (SBR) or vulcanized SBR gasket with rods.
B. Copper Tubing: ASTM B88, Type K, Annealed:
   2. Joints: Compression connection or AWS A5.8M/A5.8, BCuP silver braze.
C. PVC Pipe: AWWA C900 Class 100:
   1. Fittings: AWWA C111/A21.11, Schedule 40 per ASTM D2466 or schedule 80 per ASTM D2467.
D. Trace Wire: Magnetic detectable conductor, clear plastic covering, imprinted with “Water Service” in large letters.

2.02 VALVES

A. Valves: Manufacturer’s name and pressure rating marked on valve body.
B. Gate Valves Up To 3 Inches (75 mm):
1. Brass or Bronze body, non-rising stem, inside screw, single wedge or disc, compression ends, with control rod, post indicator, valve key, and extension box.

C. Gate Valves 3 Inches (75 mm) and Over:
   1. AWWA C509, iron body, bronze trim, non-rising stem with square nut, single wedge, resilient seat, flanged ends, control rod, post indicator, valve key, and extension box.

D. Ball Valves Up To 2 Inches (50 mm):
   1. Brass body, Teflon coated brass ball, rubber seats and stem seals, Tee stem pre-drilled for control rod, AWWA inlet end, compression outlet with electrical ground connector, with control rod, valve key, and extension box.

2.03 ACCESSORIES
   A. Concrete for Thrust Restraints: Concrete type specified in Section 03 30 00.
   B. Backflow Preventer: [______].
   C. Meter: [______].
   D. Manhole and Cover: Refer to Section 33 05 13.

PART 3 EXECUTION

3.01 INSTALLATION - PIPE
   A. Install ductile iron piping and fittings to AWWA C600.
   B. Route pipe in straight line.
   C. Install pipe to allow for expansion and contraction without stressing pipe or joints.
   D. Slope water pipe and position drains at low points.

3.02 INSTALLATION - VALVES AND HYDRANTS
   A. Set valves on solid bearing.
   B. Center and plumb valve box over valve. Set box cover flush with finished grade.
   C. Set hydrants plumb; locate pumper nozzle perpendicular to and facing roadway in accordance with Section 21 11 00.
   D. Set hydrants to grade, with nozzles at least 20 inches (500 mm) above ground in accordance with Section 21 11 00.